

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. - 12. (canceled).

13. (original): An ink jet recording apparatus comprising a record head mounted on a carriage and reciprocated in a width direction of record paper, and a sub-tank mounted on the carriage together with the record head for receiving replenishment with ink via an ink replenishment passage from a main tank, and supplying ink to the record head, wherein air pressure generated by an air pressurizing pump is applied to the main tank, and the sub-tank is replenished with ink from the main tank by the action of the air pressure, the recording apparatus further comprising:

an on-off valve unit having a valve member provided to an air flow passage from the air pressurizing pump to the main tank and opened under a given or more air pressure for maintaining the air pressure in the air flow passage within a predetermined range; and

a drive system capable of forcibly opening the valve member in the on-off valve unit, thereby releasing a pressurization state of the air pressurizing pump.

14. - 27. (canceled).

28. (original): An ink jet recording apparatus, wherein pressurized air generated by an air pressurizing pump is applied to a main tank storing ink and a record head mounted on a

carriage is replenished with ink from the main tank by the action of the pressurized air, the recording apparatus comprising:

a pressure detector, provided to an air flow passage between the air pressurizing pump and the main tank, for detecting pressure of the pressurized air, wherein driving of the air pressurizing pump is controlled based on a control signal generated according to the pressure detected by the pressure detector, the pressure detector including:

a diaphragm displaced upon reception of the air pressure of the pressurized air; and
an output generation system for generating a control signal based on the displacement amount of the diaphragm.

29. (original): The ink jet recording apparatus as claimed in claim 28, wherein the main tank has a hermetic outer shell storing an ink pack formed of a flexible material in which ink is sealingly accommodated, and wherein the pressurized air generated by the air pressurizing pump is applied to a pressure chamber formed between an outer shell component of the main tank and the ink pack.

30. (original): The ink jet recording apparatus as claimed in claim 28, wherein a sub-tank mounted on the carriage is replenished with ink via an ink replenishment passage from the main tank, and ink is supplied from the sub-tank to the record head mounted on the carriage.

31. (original): The ink jet recording apparatus as claimed in claim 30, wherein the ink replenishment passage from the main tank to the sub-tank includes a flexible ink replenishment tube.

32. (original): The ink jet recording apparatus as claimed in claim 28, wherein the output generation system includes a movable member which advances or retreats by the displacement of the diaphragm, and a photosensor having a light source and a light receiving element disposed to cross a move path of the movable member and generating the control signal based on output of the light receiving element forming a part of the photosensor.

33. (original): The ink jet recording apparatus as claimed in claim 28, wherein the output generation system includes a movable member which advances or retreats by displacement of the diaphragm, and a photosensor having a light source for projecting light onto a move path of the movable member and a light receiving element for receiving reflected light of the light source based on a movement of the movable member and generating the control signal based on output of the light receiving element forming a part of the photosensor.

34. (original): The ink jet recording apparatus as claimed in claim 32 or 33, wherein the diaphragm is formed of an elastic material and the movable member advances or retreats based on displacement of the diaphragm depending on balance of the air pressure received by the diaphragm and the restoration force of the diaphragm.

35. (original): The ink jet recording apparatus as claimed in claim 34, wherein the movable member is formed with a step part for preventing the diaphragm from being excessively displaced by the air pressure.

36. (original): The ink jet recording apparatus as claimed in claim 32 or 33, further comprising a spring member for urging the diaphragm in a restoration direction of the diaphragm, wherein the movable member advances or retreats based on the displacement of the diaphragm depending on balance of the air pressure received by the diaphragm, the restoration force of the diaphragm, and the urging force of the spring member.

37. (original): The ink jet recording apparatus as claimed in claim 36, further comprising a stopper member for receiving the urging force of the spring member and inhibiting excessive displacement of the diaphragm.

38. (original): The ink jet recording apparatus as claimed in claim 32 or 33, wherein the movable member is molded integrally with the diaphragm.

39. (original): The ink jet recording apparatus as claimed in claim 28, wherein the diaphragm is formed of rubber.

40. (original): The ink jet recording apparatus as claimed in claim 28, wherein the diaphragm is formed of rubber and cloth.

41. (original): The ink jet recording apparatus as claimed in claim 28, wherein the diaphragm is arranged to close an opening part of a case, and a space portion for receiving the air pressure from the air pressurizing pump is formed in the case.

42. (original): The ink jet recording apparatus as claimed in claim 41, wherein the case is formed with a pressurized air introduction connection tube for introducing the pressurized air from the air pressurizing pump into the space portion, and a plurality of pressurized air distribution connection tubes for distributing the pressurized air to respective main tank from the space portion.

43. (original): An ink jet recording apparatus, wherein pressurized air generated by an air pressurizing pump is applied to a main tank storing ink, and ink is supplied from the main tank to a record head mounted on a carriage by the action of the pressurized air, the recording apparatus comprising:

a pressure detector, provided to an air flow passage between the air pressurizing pump and the main tank, for detecting pressure of the pressurized air; and

a control system for driving the air pressurizing pump if a pressure detection value obtained by the pressure detector does not reach a predetermined pressure value, and stopping the air pressurizing pump after expiration of a predetermined time if the pressure detection value obtained by the pressure detector reaches the predetermined pressure value.

44. - 72. (canceled).